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Producing rabbits without harmful residues



United States Department of Agriculture
in cooperation with
The Pennsylvania State University
Cooperative Extension Service

Harmful chemical residues may collect in the liver, kidney, and other organs that actively detoxify or store foreign substances such as drugs. These residues can also accumulate in the muscle and fatty tissues of normally edible meat. In meat consumed by humans, harmful drug residues may cause allergies, produce toxic effects, or make human disease organisms resistant to the drug.

Questions about testing for harmful residues in muscles or organs can be answered by the USDA state or federal Meat Inspection Service. Check your local directory for the federal listing under "Department of Agriculture." In Pennsylvania, call the Department of Agriculture at (717) 787-1788.

Prevalence and Treatment of Rabbit Diseases

The Pennsylvania State University recently conducted a survey of U.S. rabbit producers and owners. Survey responses provided information on the nature and size of the rabbit market and on the prevalence of certain rabbit diseases. Responses also addressed the role of veterinarians and efficacy (measured effectiveness) of drugs in treating and preventing rabbit diseases.

Nature and size of the market. The survey revealed that rabbit producers most often supply meat directly to the consumer, rather than through a federal- or state-inspected processing plant. In addition, of the meat producers surveyed, approximately 53 percent raised fewer than 100 rabbits each year. Another 40 percent raised between 100 and 1,000 annually. Of the surveyed owners of pet, show, and laboratory rabbits, 63 percent had fewer than 20 breeding does.

Prevalence of certain diseases. Only diseases normally treated with antibiotics or sulfas were included on the survey questionnaire. Diarrhea was named the most serious disease, followed by snuffles, weepy eye, abscesses, pneumonia, and wry neck.

Role of veterinarians and efficacy of drugs. In treating and preventing disease, meat producers indicated they made their own decisions 83 percent of the time and consulted veterinarians only 15 percent of the time. Owners of pet, show, and laboratory rabbits indicated they made their own decisions 78 percent of the time.

The most frequent form of disease treatment was tetracycline in drinking water, followed by penicillin-streptomycin injectable, penicillin injectable, and sulfonamides in drinking water. Drugs judged most effective overall in treating diseases were penicillin-streptomycin, sulfaquinoxaline, penicillin, and a tetracycline.

The drug used most often in disease prevention was sulfaquinoxaline, followed closely by tetracycline in drinking water, a tetracycline-neomycin combination, and neomycin alone.

Magnitude of Antibiotic Residues in Rabbits

The presence of antibiotic residues in rabbits sold to Pennsylvania consumers was investigated during the summer and fall of 1983. Packages of rabbit (whole or parts) were purchased at stores throughout Pennsylvania. Fryer rabbits were collected for the summer survey; older rabbits were collected for the fall survey. Both groups were purchased from similar sources.

Because of the manner in which most of the survey rabbits were marketed — fresh, frozen, or in unmarked packages — the source of the rabbits was sometimes difficult to determine. Most were sold fresh or frozen from small local rabbit operations; others were sold frozen from out-of-state processors or international suppliers.

Thigh and loin muscles, livers, and kidneys were analyzed for antibiotic-like activity using the general field screening test, STOP (Swab Test on Premises). This test, primarily used with animal species other than rabbits, is believed to be accurate in detecting the presence of residues. However, it does not identify exactly which antibiotic residues are present in any animal.

Antibiotic-like residues were detected at varying frequencies in the muscle, liver, and kidney tissues of the rabbits. The incidence of residues was approximately twice as great in the older rabbits as in the fryer rabbits. In addition, antibiotic residues were more prevalent in livers and kidneys than in muscle tissue. Kidneys are not usually eaten, but they do accumulate residues; therefore, examining them helped to determine if antibiotics were administered to the rabbits.

STOP Test

In the STOP test used to detect antibiotic residues, spores of bacteria (*Bacillus subtilis*) are streaked onto agar plates. A cotton swab saturated with fluid from kidneys, muscles, or other tissues is then placed on the plate. The plate is incubated overnight and observed the next day for inhibition of bacterial growth. No inhibition of growth usually indicates that the edible tissues are below acceptable tolerance for commonly used antibiotics.



The two swabs on each petri plate are soaked in fluids from animal tissues. After incubation, the plate on the left shows a clear zone around each swab, indicating an inhibitory substance. The plate on the right has no clear zone, indicating no detectable substance. Each disc contains an antibiotic.

How Harmful Residues Enter Edible Tissue

- Injection of an antibiotic through a needle into a muscle or under the skin usually leaves residues for varying periods of time.
- Antibiotic residues may persist in processed meat if the drug is not administered according to label directions and if it is not withdrawn seven to forty-five days before slaughter.
- Excess quantities of medication added to the feed or water are more likely than properly administered lower dosages to leave long-lasting harmful residues.
- Medication improperly metered by a water proportioner or inadequately mixed in feed can cause harmful levels of residues in rabbits.
- The proper medication given at an acceptable level or dosage but given too frequently may cause harmful residues.

Management Practices for Preventing Harmful Residues

- Ensure adequate nutrition and feed management to keep rabbits healthy.
- Select breeders with a history of kindling and weaning healthy young.
- Keep rabbits away from visitors, predators, pests, diseased animals, and toxic chemicals.
- Control the environment of the rabbit. For example, provide adequate space per animal as well as adequate but not extreme variation in temperature, light, and air movement.
- Reduce respiratory infections: remove manure and urine daily to weekly to reduce or eliminate ammonia vapors.
- Seek help to identify any disease or health disorder and select a treatment that reduces the risk of harmful residues.
- When possible, treat health disorders without using drugs. Follow proper husbandry practices and cull sick animals.
- To eliminate persistent residues, carefully choose, correctly store, and properly use the carrier and drug.
- Consult an experienced veterinarian or nutritionist to help select the proper medication, amount of drug, length of treatment, and method of administering the drug.
- Use vitamins, minerals, and electrolytes in the water or any needed nutritional therapy other than drugs to help keep rabbits healthy and to avoid withdrawal periods.
- *Read and follow all label directions on all containers of chemicals and medications used.*
- Make sure a competent person administers all medications. Keep accurate records of pharmaceuticals used on each animal as well as the date and time administered. Record the health condition and drug response of the animal.
- Observe all withdrawal periods. Stop all treatment seven to forty-five days before slaughter, as recommended by a veterinarian. *Note:* Except for sulfaquinoxaline, specific withdrawal times have not been established for drugs used effectively on rabbits.

Withdrawal times expressed here may be modified by a practicing veterinarian.

- Do not allow toxic chemicals to be sprayed on or around rabbits.
- Do not treat litter, wood pens, and equipment (which rabbits may chew) with chemicals that may leave harmful residues in rabbit tissues.
- Do not feed rabbits lawn clippings or hay treated with toxic chemicals.

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